REMARKS

Claims 1-10 are pending. Reconsideration is earnestly solicited in view of the foregoing amendments and the following remarks.

Claims 1-7 stand rejected under 35 U.S.C. § 102(b) as allegedly being unpatentable over Nemeth et al. (U.S. Patent No. 6,288,281). Claims 1 and 8-10 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Wald (U.S. Patent No. 3,501,416). Claims 1-7 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Keim et al (WO 2000/16902). Claims 1-10 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of application no. 10/387,545. Claims 1 and 8-10 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of U.S. Patent No. 6,797,853.

I. Claims 1-7 are Patentable Over Nemeth

Claims 1-7 are rejected under 35 U.S.C. § 102(b) as being anticipated by Nemeth et al. ("Nemeth").

Nemeth discloses an ionic liquid catalyst with the general formula aA: (1-a) BX, where A is a Lewis or Brønsted acid, B a quaternary nitrogen containing cation and X is an anion. (Col. 3, lines 39-51). According to Nemeth, the Lewis acid is selected from halides of aluminum, boron, and the like. (See Col. 3, lines 52-55). Moreover, Nemeth exemplifies at in the Examples, which are summarized in Table 1, Col. 6, that the catalyst compositions are prepared by mixing a quaternary nitrogen containing compound, either with a Lewis acid, *i.e.* aluminum chloride or bromide (Ex. 1-12) or with a Brønsted acid (Ex. 13).

The present invention relates to a catalyst composition which comprises (a) an ionic liquid catalyst with an N-containing heterocyclic and/or aliphatic organic cation and an inorganic anion derived from metal halides or mixed metal halides, and (b) a Brønsted acid.

It is well settled that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). Moreover, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). Here, Nemeth does not anticipate the instant claims as Nemeth does not disclose, either expressly or inherently, a catalyst composition which comprises "an ionic liquid catalyst" and a Brønsted acid where the ionic liquid catalyst comprises an N-containing heterocyclic and/or aliphatic organic cation and an inorganic anion derived from metal halides or mixed metal halides. Since Nemeth does not disclose the claimed catalyst composition, for at least this reason claims 1-7 are patentable over Nemeth.

II. Claims 1 and 8-10 are Patentable Over Wald

Claims 1 and 8-10 are rejected under 35 U.S.C. § 102(b) as being anticipated by Wald. Wald relates to a catalyst composition having one or more metal chlorides and either (1) a C_4 –C_{20} quaternary ammonium tetrachloroaluminate, or (2) two alkali metal tetrachloraluminates and at least one of the group consisting zinc, calcium and barium tetrachloroaluminates. (See Abstract). In contrast to the instantly claimed invention, the compounds and metal chlorides of Wald, while they show solely Lewis acid activity, are not Brønsted acids. A Brønsted acid is a molecular entity capable of

donating a proton to a base or the corresponding chemical species while a Lewis acid is an electron pair acceptor.

Wald does not anticipate the instant claims as Wald does not disclose, either expressly or inherently, a catalyst composition which comprises "an ionic liquid catalyst" and a Brønsted acid where the ionic liquid catalyst comprises an N-containing heterocyclic and/or aliphatic organic cation and an inorganic anion derived from metal halides or mixed metal halides. Since Wald does not disclose the claimed catalyst composition, for at least this reason claims 1 and 8-10 are patentable over Wald.

III. Claims 1-7 are Patentable Over Keim

Claims 1-7 are rejected under 35 U.S.C. § 102(b) as being anticipated by Keim et al ("Keim").

Keim discloses an ionic liquid being substantially free of Lewis acidity and comprising an organo-nitrogen compound or an organo-phosphorous compound together with a Brønsted acid (see Abstract).

In contrast to Keim, the present invention is an ionic liquid catalyst composition containing a Lewis acid, *i.e.* an inorganic anion derived from metal halides or mixed metal halides, combined with a Brønsted acid. Keim does not anticipate the instant claims as Keim does not disclose, either expressly or inherently, a catalyst composition which comprises "an ionic liquid catalyst" and a Brønsted acid where the ionic liquid catalyst comprises an N-containing heterocyclic and/or aliphatic organic cation and an inorganic anion derived from metal halides or mixed metal halides. Since Keim does not disclose the claimed catalyst composition, for at least this reason claims 1-7 are patentable over Keim.

Moreover, the pending claims would not have been obvious over Nemeth, Wald or Keim, either alone or in combination. As set forth above, none of the references disclose or suggest that a catalyst composition comprising a combination of a the claimed ionic liquid catalyst having an N-containing heterocyclic and/or aliphatic organic cation and an organic anion together with a Brønsted acid. As shown in the specification, the claimed catalyst composition provides an increased yield in the isomerisation of hydrocarbons (See, e.g., Table I, Example 2(a) having no Brønsted acid compared with the remaining examples). For at least these reasons, claims 1-10 are patentable over the prior art of record.

IV. Obviousness-type Double Patenting Rejections

Claims 1-10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of co-pending application 10/387,545, which, according to the Office Action is expressly abandoned. Firstly, the PTO's Public PAIR web page indicates that the 10/387,545 application is currently pending. Secondly, reconsideration of the provisional rejection in light of the attached Terminal Disclaimer over co-pending application no. 10/387,545 is solicited.

Claims 1, 8-10 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of US Patent 6,797,853. Reconsideration of the rejection in light of the foregoing response is respectfully requested in view of the attached Terminal Disclaimer.

V. Conclusion

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

By _____

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